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PROGRAM 437

On 9 February 1962, USAF issued an advanced development object for an anti-satellite program. (ADO No. 40). The objective for the program was to demonstrate the technical feasibility of developing a non-orbital collision-course satellite interceptor system capable of destroying hostile satellites in an early time period. The concept considered launching the interceptors from the ground or possibly from carrier aircraft [1 line excised]
[2 lines illeg]

Van Allen belt
from a reasonable minimum number of interceptor launching sites. Prime consideration was to be given to using boosters that were under development or in production.

[REDACTED]

PROGRAM 107

[illegible]

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Primary emphasis was to be

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[8 lines excised]

The Air Force
Systems Command (AFSC) was directed to investigate the
choices available in the selection of components and to
[1 line illeg]
[4 words illeg] and proposed solutions of critical
problems.²

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As ADC conceived the SIS, it would require launch and range facilities, readout stations, command and control facilities and the necessary communications to operate the system. Under the operational control of [excised] the system was to be maintained and [illeg] by ADC.

[1 line excised]

[8 words illeg]

to negate
orbiting objects in operation no later than 1964, [excised]

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"b1"

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"C"

ADC was required to negate existing objects in operation no later than 1964, "b1"

"b1" The Command well recognized that such an early operational date would make it difficult to provide ideal reaction times, coverages, etc. But, the psychological and deterrent aspects of the system were great, regardless of these shortcomings. Such a system should be capable of negating objects up to "b1" in as rapid a reaction time as possible. ADC conceived of two additional phases for the SIS program.

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USAF headquarters welcomed ADC's views in its QOR and assured it that Air Force actions would be oriented toward the system development in accordance with the phases suggested by ADC. Phase I of the QOR was then being pursued under ADO 40 by AFSC. As to Phases II and

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III, these were deemed in consonance with the objectives of USAF, and when appropriate, a specific operational requirement (GOR) was to be issued to cover the overall system.

By October 1962, AFSC had completed its studies and was ready to submit its recommendations to the Department of Defense. General Schriever of AFSC expressed enthusiasm for the program to General Lee and asked that ADC develop a plan [5 lines excised]

system. ADC was informed that study of an advanced non-orbital satellite negation capability would be continued as Phase II of ADO 40, with responsibility assigned to the Space Systems Division of AFSC.

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On 20 November 1962, the Secretary of Defense was briefed on the anti-satellite program. On 13 December

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1962, the Director of Defense Research and Engineering informed the Secretary of the Air Force that "some version of your proposal appears to be the fastest way of obtaining an increased capability on range and altitude beyond that which will be available from the NIKE/ZEUS installation at Kwajalein." DOD gave tentative approval to include \$6 million in FY 1963 and \$11 million in FY 1964 for the program.

On 13 January 1963, the Space System Division of AFSC submitted its [illeg] to USAF describing the research and development phase of the ADO 40 program. The proposal envisioned a four-[2 lines illeg].

On 7 February 1963, the Department of Defense spelled out the obligations of the three services and ARPA for anti-satellite programs underway. To the Air Force went the responsibility for research and development

[lines excised]

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On 13 January 1963, the Joint Committee on Defense Education and Research (JCEDR) was established to coordinate the research and development phases of the JCEP program. The program was to be completed by the end of 1964.

On 7 February 1963, the Department of Defense spelled out the obligations of the three services and ARPA for anti-satellite programs underway. To the Air Force went the responsibility for research and development

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Island.

[4 lines excised]

With respect to the Johnston Island program officially designated 437 by Secretary Zuckert on 8 February 1963, approximately \$16 million was included in the Fiscal 1964 budget, with \$6 million reprogrammed out of FY 1963 funds for it.

The January PSPP had specified a four-shot R&D demonstration program. On 13 February 1963 however, USAF notified the AFSC that DOD had specified an additional requirement for the acquisition of an operational stand-by capability following the development demonstration.

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Island.

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With respect to the Johnston Island program, officially designated 437 by Secretary Luckert on 8 February 1963, approximately \$13 million was included in the Fiscal 1964 budget, with \$6 million reprogrammed out of FY 1963 funds for 437.

The January 1963 AECB was specified a four-man ADCS communication program. On 15 February 1963 however, USAF notified the AFSC that DOD had specified an additional requirement for the acquisition of an operational stand-by capability following the development demonstration. In pursuance of this guidance, USAF directed Systems Command to integrate ADC personnel at every level of the development effort so that a "blue suit" launch capability would be acquired. This was the first official intimation that the Air Defense Command would play a major role in Program 437.

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USAF went on to say that when the Johnston Island facility was determined to be operational and the ramifications of the national policy pertaining to its employment were more clearly established, responsibility would be transferred to ADC, if appropriate.

Suffice it to say that ADC was both encouraged and disappointed by this statement. The following preliminary guidance for the stand-by operational capability was offered: the launched crew was to be "blue suit" but it was not intended that the use of contractor technical representatives would be prohibited. The number [1 line illeg]

went at a minimum: a reaction time of two weeks of launch alert to take off was required, but USAF indicated

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Suffice it to say that ADC was both encouraged and disappointed by this statement. The following preliminary guidance for the stand-by operational capability was offered. The launch crew was to be "blue suit" but it was not intended that the AFSC contractor technical representatives would be involved. The number of personnel to be involved was not specified. A reaction time of two weeks of launch alert to take off was required, but USAF indicated that it would accept a lesser reaction time provided no additional personnel for resources were involved. Emphasis was placed on austerity, with reliability and confidence as a goal, rather than extension of operational capability. At the same time, USAF directed AFSC and ADC jointly prepare an operational plan for the "blue suit" capability.

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Though it was the belief of Lieutenant General Howell M. Estes, Jr., Vice-Commander of AFSC, that further guidance as to sources of personnel and resources for training and development was needed from USAF the two commands could make progress by some preliminary planning.

To this end, Brigadier General H.A. Hanes, ADC's Assistant Deputy Chief of Staff for Plans, visited [2 words illeg] Space Systems Division of AFSC in March 1963. There it was [illeg] that a squadron should be formed, trained and assigned to AFSC's
[2 lines illeg]

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To this end, Brigadier General H.A. Hanes, ADC's Assistant Deputy Chief of Staff for Plans, visited Headquarters of the Joint Defense Division of AFSC in March 1963. There it was agreed that a squadron would be formed, trained and assigned to AFSC's continental support base for Johnston Island had not been selected, it was believed that Vandenberg AFB would be best. The meeting in March had an additional benefit. General Hanes reported that any suspicions ADC might have entertained about competition between itself and AFSC for operational command of Program 437

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were unfounded. This was confirmed by General Funk, Commander of AFSC to ADC on 13 March 1963 when he said "on completion of training of a squadron, its personnel, equipment, and facilities would be transferred to ADC as an operational capability."

On 14 March 1963, the operation concept for Program 437 was published. The operational system was to be comprised of missiles and facilities at Vandenberg AFB and a two-pad launch complex at Johnston Island.

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On 14 March 1963, the operation concept for Program 407 was published. The operational system was to be comprised of missiles and facilities at Vandenberg AFB and a launch pad located at Johnston Island.

The remainder of the unit personnel would be based in a tenant status at Vandenberg AFB. All boosters with interceptor vehicles, including warheads, spare parts, support equipment and maintenance facilities, would be maintained at Vandenberg. A suitable launch pad to permit missile training was to be provided there. Three missiles would be maintained in a condition

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of readiness for possible short notice air transportation to Johnston Island and associated spare parts and tools would be maintained in the form of fly-away kits. All equipment necessary to launch were to be transported aboard the same aircraft with each missile. Two missiles were to be deployed at a time to provide the required redundancy. Upon detection of a unknown satellite believed to be hostile [excised] the unit was to be alerted and command authority notified. On receipt of the alert notification all routine activities were to cease. Two missiles with associated fly-away kits and launch personnel were to be recalled and the remaining missiles were to be [illeg] to operational ready status.

With the issuance of the deployment order, MATS

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of readiness for possible short notice air transportation to Johnston Island and associated spare parts and tools would be maintained in the form of fly-away kits. All equipment necessary to launch were to be transported aboard the same aircraft with each missile. Two missiles were to be deployed at a time to provide the required redundancy. Upon detection of a unknown satellite believed to be hostile "WV" the unit was to be alerted and command authority notified. In receipt of the alert notification all routine activities were to cease. Two missiles with associated fly-away kits and launch gear were to be loaded on the aircraft. The aircraft was to be ready for operational ready status.

With the issuance of the deployment order, MATS aircraft were to be assigned to accomplish the airlift of two missiles and associated personnel to Johnston Island. Simultaneously, all supporting facilities at Johnston Island were to be alerted to make pre-launch preparations. Upon arrival at Johnston Island all effort to ready the missiles for launch were to be undertaken. In the event that either deployed missile could not be prepared for launch, because of an aircraft accident or equipment failure not correctible at Johnston Island,

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the third missile and associated equipment were to be deployed from Vandenberg. Activity was to be continued until both missiles were brought to the pre-determined pre-launch condition, and held in that condition to await receipt of the launch order. Deployment time from alert to launch was not to exceed two weeks.
[2 lines excised]

As the launch time approached, the two missiles were to be counted down. Simultaneous launch was not possible, but proper selection of the intercept points [words illeg] missiles would permit transferring to the secondary in many cases in the event of primary missile failure.

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completion of the mission, pad rehabilitation was to be accomplished. Action was then to be taken to install a replacement missile flown in from Vandenberg, or to redeploy the unit and remaining missile to Vandenberg.

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as directed. All equipment of the system was to be air-transportable. Integral aircraft were not planned, but were to be allocated on a priority basis in conjunction with a deployment order. Extended periods of deployment to Johnston Island if required were to be supported by regular MATS airlift as necessary. Maximum maintenance was to be performed at Vandenberg.

As for personnel, previously qualified missile personnel, those with [illeg] experience where possible, were to undergo individual training for the purpose of uptraining on peculiar program equipments and modifications. The unique nature of [words illeg] require intensive team training on a continuing basis to assure of attaining and maintaining high standards of

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As for personnel, previously qualified missile personnel, trained with OH-71 vehicles where possible, were to undergo individual training for the purpose of maintenance of regular program equipments and modification. The nature of the program was to require intensive team training on a continuing basis to assure of attaining and maintaining high standards of proficiency. The unit was to undergo practice deployment, including an actual practice launch, utilizing a non-nuclear intercept vehicle. The frequency of practice and deployments and launches were to be specified.

Approved program funding by the Office of the Secretary of Defense for Program 437 was \$6 million in

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in FY 1963, and \$11 million in FY 1964. The concept as it existed in March 1963 was that there would be four R&D shots with dummy warheads staged out of Vandenberg AFB, and launched by contractor crews. The first shot was expected in November 1963. Target date for the IOC was 31 March 1964, for a "blue suit" capability by ADC to include maintenance and launch crews, although a few contractor specialists were to remain for warheads and guidance systems. The [illeg] were required for reaction time from alert to launch.

At the same time [illeg] important personnel arrangements were [words illeg] training them and making an operational squadron combat-ready. A training program was to be conducted at

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At the same time, important personnel assignments were made. Personnel were to be assigned to training and making in operational squadron combat-ready. A training program was to be conducted at Shepard Technical Training Center beginning in August 1963. Personnel were to attend field training at Vandenberg AFB after this, and all formal training was to be completed by 15 November 1963. That done, the personnel would be formed into launch-maintenance crews. The first crew was to begin training 15 November 1963 for six weeks, with training completed in March 1964.

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On completion of the integrated training a crew or crews would be sent to Johnston Island to participate in one or more of the research and development demonstration launches. It was expected that about four actual deployment exercises to Johnston Island would be conducted annually, with three training launches accomplished.

[3 lines excised]

At the topmost echelons 437 received added impetus on 20 March 1963, when Secretary of the Air Force Eugene M. Zuchert informed the Air Force Chief of Staff General LeMay, that the development of an operational capability to negate satellites had top priority among

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At the highest echelons AFSC received direct impetus on 24 March 1948, when Secretary of the Air Force Eugene M. Zachary informed the Air Force Chief of Staff General LeMay, that the development of an operational capability to negate satellites had top priority among defense program. LeMay was directed to insure that the necessary resources were allocated to AFSC to expedite conduct of the Research and Development demonstrations and the establishment of an emergency operational capability. ¹⁴ At the same time the Deputy Chief of Staff

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for Research and Development was directed to make available to AFSC the THOR assets at Vandenberg AFB, including personnel with THOR launch and maintenance experience. The Assistant Secretary for R&D also indicated that it was his intention to recommend a reduced reaction time capability for the operational program to the DOD. The USAF was told to aim for a reaction capability limited only by the technical aspects of the system, and not by austerity considerations. A two-to-three-day reaction time was considered appropriate. The requirement for personnel for the operational unit was estimated at 16 officers and 123 airmen.⁴⁶

On 13 April 1963 Systems Command designated and organized at Vandenberg AFB, effective 20 April 1963,

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15
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On 15 April 1963, the program was initiated and organized at Vandenberg AFB, effective 20 April 1963, the 6595th Test Squadron, as the operational agency of
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Program 437.

Discussions between AFSC and ADC resulted on 15 April 1963 in a memorandum of understanding between the

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two commands concerning their responsibilities with respect to Program 437.
[6 lines excised]

During April 1963, it appeared that there was some delay and confusion in ADC's mind concerning SAC's role in Program 437. It was anticipated by ADC, that personnel inputs for the Program would come from ATLAS, THOR and [illeg] personnel. But, ADC suspected that it would have trouble persuading SAC to release its THOR

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It was fairly clear in the spring of 1963 that there would be a certain amount of adjusting in the

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scheduling of the launch date. Thus, SSD notified all concerned that the launch date for the first launch was rescheduled to 20 December 1963, with subsequent launch to be made at three-week intervals until four had been made. Consequently, the IOC date of 31 March 1964 was deemed to be no longer attainable.²⁰

The ultimate operational responsibility for Program 437 was still uncertain to the ADC commander on 1 July 1963. On that date he addressed a letter to the Chief of Staff USAF, urging him to designate ADC as the using command. General Lee called attention to the fact that earlier in the year, on 13 February 1963, USAF headquarters and [illeg] the intention of transferring responsibility to ADC for operations "if appropriate." For ADC the time was now. General Lee

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The ultimate operational responsibility for Program 437 was still uncertain to the ADC commander on 1 July 1963. On that date he addressed a letter to the Chief of Staff USAF urging him to designate ADC as the using command. General Lee called attention to the fact that earlier in the year on 13 February 1963 USAF had agreed to the transfer of responsibility to ADC for operations "if appropriate." For ADC the time was now. General Lee thought that by participating with AFSC during the acquisition phase of Program 437 the command would acquire the experience and knowledge necessary to operate and support follow-on systems. With his responsibility so tenuous, however, General Lee thought it would be increasingly difficult to justify diversion of his limited resources from assigned missions to Program 437. He believed that

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failure to designate ADC as the user greatly inhibited the command's planning actions with respect to 437. He recommended that ADC "be unequivocally designated now as the user of Program 437 when it becomes operational and that ADC and AFSC be directed to initiate required planning actions to insure an orderly transfer of responsibility at IOC."²¹

General Lee's urgent request to designate ADC as user for Program 437 paid off on 15 July 1963 when USAF did so designate ADC. However, USAF stressed that an orderly transfer of responsibilities from AFSC to ADC should be accomplished, and directed that initiate and develop a plan of action with AFSC to establish time-phasing and milestones with the plan to be submitted to USAF for approval within 60 days.

[lines excised]

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Early in July the thinking of the Secretary of Defense on the subject of Program 437 was made known to ADC through the minutes of a meeting held in the Pentagon on 27 June 1963, in which Secretary McNamara was briefed on the subject.

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[10 lines excised]

By mid-August 1963, with the publication of SSD's proposed system package plan for Program 437 Phase II (the operational system) the shape of the future program had been considerably clarified. The operational system

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By mid-August 1983, with the publication of SSD's proposed system package plan for Program 437 Phase II (the operational system), the shape of the future program had been considerably clarified. The operational system would consist of two launch-ready missiles on Johnston Island launch pads with full support facilities thereat. The essential mission training and support facilities and equipment at Vandenberg AFB would remain there.

"b1"

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The launch complex and essential support facilities on Johnston Island were to be comprised of two launch emplacements with AGE equipment, including the necessary check-out trailers and vans. In addition, there would be a ground guidance station, payload command detonation system, launch control center, direction and targeting centers and support equipment. In addition, mission safety equipment, payload, storage facilities, LOX, and nitrogen manufacturing storage and transfer facilities, fuel storage, a communication center and general support facilities were to be located on Johnston Island.

The PSPP recognized that the 437 operational weapons system had significant limitations. The use of a

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The PSPP recognized that the 437 operational weapon system had significant limitations. The use of a liquid propellant booster required propellant loading during terminal count-down, making it impossible to hold the missile indefinitely subsequent to loading.

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[11 lines excised]

The concept of operations was spelled out as follows:
the system was to consist of the ground-based interceptor
missile complex manned and operated by Air Force personnel
[words excised]
The system was to be operated by ADC on completion of the
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The system was to be operated by ADC on completion of the acquisition phase. Operational control was exercised by CINCONAD. The operational squadron was to be based as a tenant at Vandenberg AFB with a launching detachment of permanently assigned support personnel augmented by TDY technical personnel and contractor technical representatives as necessary at Johnston Island. The squadron missile inventory consisted of six missiles, two in operationally readiness status

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on pads at Johnston Island, and four back-up and training boosters at Vandenberg AFB. Launch procedures were to include a dual count-down of both a primary and back-up missile. Intercept points were to be chosen to provide maximum system effectiveness within imposed political and safety constraints. Operational launches from Vandenberg were not contemplated.

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[6 lines excised]

Following the launch the squadron was to initiate action to refurbish the launch pad. A replacement vehicle and associated payload assembly were to be airlifted from Vandenberg to Johnston Island. Launch of the missile would automatically initiate the action to resupply an additional missile to Vandenberg AFB. If no immediate substitute launch was contemplated, the remaining missile was to be fueled, purged, and returned

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would be analyzed by the squadron direction center and used for immediate evaluation of mission success.

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As to ADC's role in all this, the command was to conduct launch operations within the constraints specified by CINCONAD; provide CONAD with system status and system capability evaluation for decision making;
[1 line excised]

assist in damage assessment effort; and provide mission safety within constraints levied by CINCONAD during training and operational launches.²⁶

By October 1963, plans had been readied for the transition of responsibilities for Program 437 from Air Force System Command to ADC. Among the actions taken were arrangements to have the [illeg] Test Squadron at Vandenberg transferred from AFSC to ADC on 15 November 1963. On transfer ADC was to inactivate it immediately

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By October 1963, plans had been reached for the transition of responsibilities for Program 437 from Air Force System Command to ADC. Among the actions taken were arrangements to have the 3337 Test Squadron at Vandenberg transferred from AFSC to ADC on 15 November 1963. On transfer ADC was to inactivate it immediately and organize the 10th Aerospace Defense Squadron as an ADC unit at Vandenberg on the same date. The unit, designated the 10th Aerospace Defense Squadron, was authorized 49 officers, 451 airmen and 3 civilians. Detachment 1 of the squadron comprising two officers and 110 airmen was to be formed at Johnston Island.

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The remainder of the squadron was to be divided into three rotational complements, with one of them at TDY at Johnston Island at all times.²⁷

During 1964 there were four live launches from Johnston Island. Two research and development launches were made successfully by contractor crews on 14 February and 2 March 1964. [1 line excised]

A third R&D launch was scheduled for mid-April but because of the success of the two preceding launches it was cancelled. The last R&D launch, in May 1964, was performed by the "blue suiters" of the 10th Aerospace Defense Squadron, under the supervision of contractor personnel. Unfortunately, the flight malfunctioned and the booster went out of control,

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"b1"

Since the malfunction was not the fault of the 10th Aerospace Defense Squadron -- the launch itself being deemed successful -- General Thatcher of ADC and General Funk of SSD, both of whom observed the firing, agreed that the squadron had sufficiently demonstrated its ability. On the following day, 29 May 1964, the 10th was declared in a condition of

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initial operational capability (IOC), with one missile on alert at Johnston Island. Full operational capability (FOC) came on 10 June 1964 when both missiles were placed on alert. Initial operational capability status also saw the 10th pass from the operational control of AFSC to ADC.

There was one more launch in November, called a combat training launch (CTL). This was to have been the first of three CTL launches yearly to maintain group proficiency, according to original planning. However, in December 1963, ADC learned that the DOD had reduced procurement of missiles from 16 to 8 to last through FY 1967. Since four were required for operational alert, i.e., two on Johnston Island and two on backup at

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initial operational capability (IOC), with one missile on alert at Johnston Island. Full operational capability (FOC) came on 10 June 1964 when both missiles were placed on alert. Initial operational capability status also saw the 10th pass from the operational control of AFSC to ADC.

There was one more launch in November, called a combat training launch (CTL). This was to have been the first of three CTL launches yearly to maintain group proficiency, according to original planning. However, in December 1963, ADC learned that the DOD had reduced procurement of missiles from 13 to 8, to last through FY 1967. Since four were required for operational alert, i.e., two on Johnston Island and two on backup at Vandenberg AFB, that left only four for training. ADC was subsequently informed that the 437 Program was to extend thru FY 1970, thus making the available missiles even more precious.

As mentioned above, one "bird" had been expended in a CTL in November 1964. Another was scheduled for April 1965, leaving only two more to be used for combat training thru FY 1970. The dilemma that faced ADC was obvious. Unless the skills of the 10th were carefully

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exercised there was danger of atrophy and a serious drop in morale. With this danger in mind, dramatized by appeals by Colonel Minihan, the 10th's commander, and from the 9th ADD's Vice-Commander to the effect that "437 must improve or die!" ADC set about to find a remedy.

Since an additional missile "buy" would result in a head-on confrontation with DOD, ADC chose to take an approach which would avoid a demand for money. Instead, ADC wrote to General Funk at Space Systems Division, General Clizbe at USAF headquarters, and to General Greer at the Department of the Air Force, asking that the 10th ADS be permitted to provide launch support at Vandenberg AFB for other agencies engaged in Thor-launched programs. At year's end ADC hopefully awaited affirmative answers.

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